What is claimed is:

1. In an in-situ combustion process for oil recovery from a formation located below a surface, the combustion process including combusting a portion of an oil-bearing formation so as to generate heat in the formation in order to reduce viscosity of heavy oil in the reservoir and/or to cause oil trapped in a solid or semi-solid material to be released, in liquid form, from the material,

the improvement comprising non-cryogenically generating an oxygen-enriched gas stream above the surface and injecting said oxygen-enriched gas stream into the formation so as to support in-situ combustion in the formation.

2. The improvement of Claim 1, wherein the non-cryogenic generating step includes conveying air through a membrane system.

3. The improvement of Claim 1, wherein the non-cryogenic generating step includes conveying air through a pressure swing adsorption system.

4. The improvement of Claim 2, further comprising the step of blending air with the oxygen-enriched gas stream so as to produce a gas stream having a desired oxygen content.

5. The improvement of Claim 3, further comprising the step of blending air with the oxygen-enriched gas stream so as to produce a gas stream having a desired oxygen content.

6. The improvement of Claim 1, wherein the generating step produces an oxygen-enriched stream and an oxygen-depleted stream, the process further comprising using the oxygen-depleted stream to operate a compressor for compressing the oxygen-enriched stream.

7. The improvement of Claim 1, wherein the in-situ combustion process is selected to be a toe-to-heel combustion process.

8. The improvement of Claim 7, wherein the in-situ combustion process is selected to be a process which uses a catalyst to upgrade oil before the oil has been withdrawn from the formation.

9. The improvement of Claim 1, further comprising compressing the oxygen-enriched gas stream before injecting said stream into the formation.

10. A method of enhancing an amount of oil recoverable from a formation, the formation being located beneath a surface, the method comprising:

a) non-cryogenically generating an oxygen-enriched gas stream above the surface of the formation, and

b) injecting said oxygen-enriched gas stream into the formation so as to support combustion of a portion of the formation, wherein the formation is heated by said combustion so as to reduce viscosity of heavy oil in the reservoir and/or to cause oil trapped in a solid or semi-solid material to be released, in liquid form, from the material.

11. The method of Claim 10, wherein the non-cryogenic generating step includes conveying air through a membrane system.

12. The method of Claim 10, wherein the non-cryogenic generating step includes conveying air through a pressure swing adsorption system.

13. The method of Claim 11, further comprising the step of blending air with the oxygen-enriched gas stream so as to produce a gas stream having a desired oxygen content.

14. The method of Claim 12, further comprising the step of blending air with the oxygen-enriched gas stream so as to produce a gas stream having a desired oxygen content.

15. The method of Claim 10, wherein the generating step produces an oxygen-enriched stream and an oxygen-depleted stream, the process further comprising using the oxygen-depleted stream to operate a compressor for

compressing the oxygen-enriched stream.

16. The method of Claim 10, wherein the in-situ combustion process is selected to be a toe-to-heel combustion process.

17. The method of Claim 16, wherein the in-situ combustion process is selected to be a process which uses a catalyst to upgrade oil before the oil has been withdrawn from the formation.

18. The method of Claim 10, further comprising compressing the oxygen-enriched gas stream before injecting said stream into the formation.

19. A method of recovering oil from an oil-bearing formation, comprising:

a) selecting a location of the formation, and determining parameters relating to the formation,

b) choosing a level of oxygen content for air to be injected downhole in said formation to support in-situ combustion, the oxygen content being chosen in accordance with said parameters,

c) generating an oxygen-enriched gas above a surface of said formation, and adjusting an oxygen concentration of said oxygen-enriched gas according to the level chosen in step (b), and

d) injecting said oxygen-enriched gas to a combustion site below the surface of the formation.

20. The method of Claim 19, wherein step (c) is performed by a portable system, and wherein method further comprises the steps of repeating steps (a) and (b) for a different formation, moving the portable system to a vicinity of said different formation, and repeating steps (c) and (d) in the vicinity of said different formation.